



IMPROOF

D6.5 “Open day in DOW premises for rising stakeholder interest for the industrial demonstrator”

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Editor	George Bellos (Dow)		
Other authors			

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K. VanGeem	Coordinator	UGENT	27/02/20	OK
P. Lenain	Quality manager	AYMING	27/02/20	OK

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EXECUTIVE SUMMARY..... 3

1.1 DESCRIPTION OF THE DELIVERABLE CONTENT AND PURPOSE 3

1.2 BRIEF DESCRIPTION OF THE STATE OF THE ART AND THE INNOVATION BREAKTHROUGHS 3

1.3 CORRECTIVE ACTION..... 3

2 PREPARATION OF THE WORKSHOP..... 4

2.1 DATE AND LOCATION..... 4

2.2 SCHEDULE..... 4

2.3 WORKSHOP PROMOTION 5

3 WORKSHOP ACTIVITIES 7

3.1 SPEAKERS..... 7

4 ACHIEVEMENTS 10

EXECUTIVE SUMMARY

1.1 Description of the deliverable content and purpose

This report describes the activity carried out during the event: “*Open day at Dow*”, as well as its organization procedures. The workshop is part of the Grant Agreement of the IMPROOF project. The workshop was organized by Dow Benelux BV. The goal of the workshop was to provide the attendants with a broad overview of the IMPROOF work packages.

1.2 Brief description of the state of the art and the innovation breakthroughs

This part is not relevant for this deliverable, being it focused on the preparation and implementation of the workshop.

1.3 Corrective action

This part is not relevant for this deliverable.

2 PREPARATION OF THE WORKSHOP


2.1 Date and Location

The workshop took place on Wednesday the 29th of January 2020 in the Farmhouse of Dow in Terneuzen. The participants had the opportunity to attend the presentations, visit the Dow Industry Park and stay after the presentations closure in the event room for extended discussions with the IMPROOF partners.

2.2 Schedule

Table 1 shows the schedule for the 29th of January:

Table 1: Schedule event: “Open day at Dow”.



Hydrocarbons

Discover the integrated model for energy optimization of steam cracking furnace

Agenda

08:30-09:00 Registration

9:00-9:15 Event opening from Michael de Graaf, Senior Leader in Core R&D, Dow

9:15-10:00 Keynote presentation on the Chemical Industry under the 4th Industrial Revolution, Rafael Cayuela, Dow Chief Economist

10:00-10:30 Overview of IMPROOF by Dr. G. Bellos, Dow and Prof. K. van Geem

10:30-10:45 Coffee break

10:45-11:10 Biofuel gas firing and oxycombustion kinetics by Prof. T. Faravelli, Politecnico di Milano

11:10-11:30 Using Bio Fuel gas under O₂ enriched flue gases in steam crackers by Ahmed Kadi, John Zink

11:30-12:00 High emissivity coatings for ethylene furnaces by S. Vangaever, Gent University and Joost van Thielen, Cress BV

12:00-13:00 Lunch break

13:00-13:30 Advancements in radiant coil technology by Dr. M. Djokic, Gent University and S. Heyland, Schmidt and Clemens

13:30-14:15 Low emission furnaces by P. Oud, Technip and Dr. G. Bellos, Dow

14:15: 15:30 Plant tour by bus

15:30-17:00 Open day closure and drinks

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2.3 Workshop promotion

People were invited to the IMPROOF event through Dow. Dow used an extended email list which includes the European Ethylene Producing companies, CEFIC, European Commission project officers, Technology development and Engineering companies and Universities. The list was extended by adding people from the mailing list of The Laboratory for Chemical Technology. Dow invited 204 people and 94 joined the event. Figure 2 and Figure 3 show the actual participation from each sector and country.



The image shows an email invitation for the IMPROOF Open Day event. At the top, there is a banner with the Dow logo and the slogan "Seek Together". Below the banner, the text reads "Hydrocarbons". The main heading is "Discover the integrated model for energy optimization of steam cracking furnace". The email is addressed to "Dear Georgios," and invites the recipient to an Open Day event on January 28 in Terneuzen, The Netherlands. It describes the event's focus on energy optimization and CO2 emissions, and lists the speakers and topics. A "Register for Open Day" button is prominently displayed. The footer includes contact information for The Dow Chemical Company and a copyright notice.

Seek Together

DOW

Hydrocarbons

Discover the integrated model for energy optimization of steam cracking furnace

Dear Georgios,

We are delighted to invite you to visit us at an Open Day event on January 28 in Terneuzen, The Netherlands.

During the event, we will feature a newly expanded portfolio of innovative studies to meet future industry requirements in terms of energy optimization and CO₂ emissions. We are presenting the developments of the EU funded IMPROOF project.

Experts from European Universities and leading technology developers will present their contributions towards the future ethylene furnace. The experts will be present at the event to address your questions.

 **Register, no later than 28th November** in order to attend our sessions during the event:

- Event opening from Dow Benelux Leader, Anton van Beek.
- Keynote presentation on the future of the Chemical Industry by 2050, Rafael Cayuela
- Overview of IMPROOF, G. Bellos and Prof. K. van Geem
- IMPROOF technologies development and evaluation
- Plant tour by bus
- Event closure

Register for Open Day

We look forward to hearing from you and will be back shortly with a confirmation.

Kind Regards,
The Dow Team

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The Dow Chemical Company | Herbert H. Dowweg 2 | 4542 NW HOGK | Terneuzen | Netherlands | www.dow.com

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Figure 1: Advertising for the IMPROOF Open Day event at Dow.

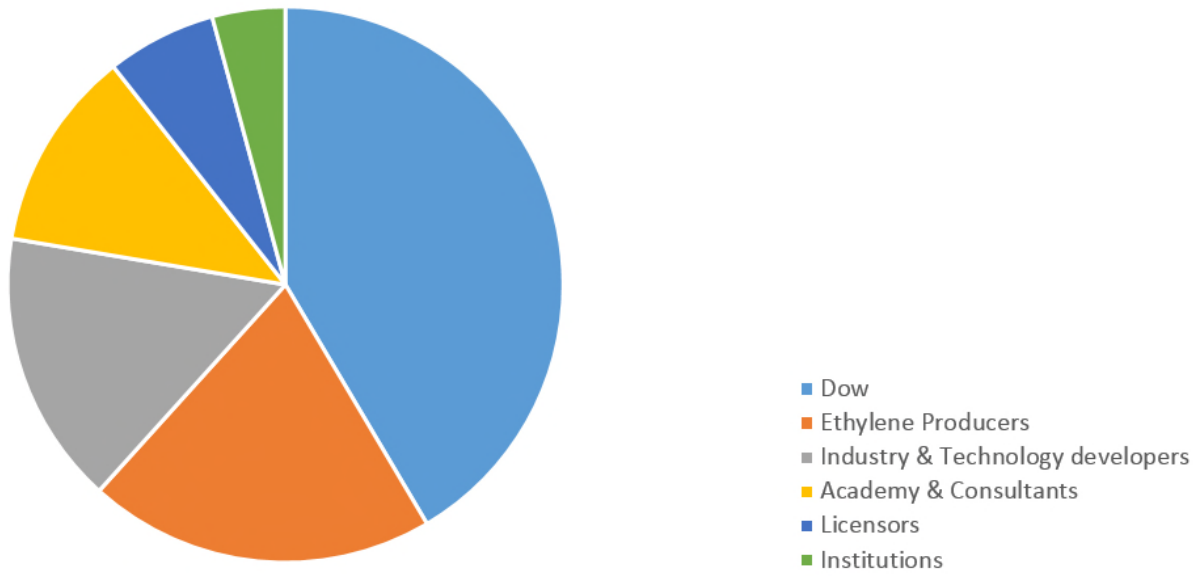


Figure 2: Pie-chart illustrating the actual participation per sector.

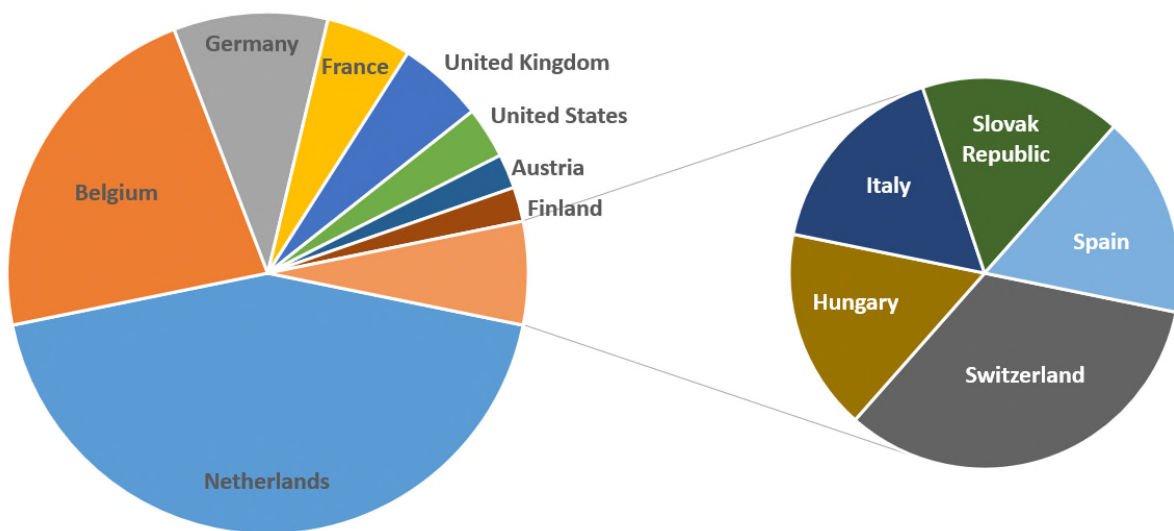


Figure 3: Pie-chart illustrating the actual participation per country.

3 WORKSHOP ACTIVITIES

3.1 Speakers

Dr. Michael de Graaf opened the event. He gave a presentation with regards to the Dow Industry Park in Terneuzen, the 2025 Sustainability Goals, and presented the agenda for the event. A keynote lecture was presented by Rafael Cayuela, Chief Economist at Dow. The presentation illustrated scenarios about the future of the chemical industry by 2050.



Figure 4: Dr Michael de Graaf (Dow, left hand-side) and Rafael Cayuela (Dow, right hand-side) presenting at the Open Day at Dow

Dr. Georgios Bellos and Prof. Kevin van Geem gave a joint presentation about the IMPROOF overview and the objectives of all work packages.



Figure 5: Dr Georgios Bellos (left hand-side) and Prof. Kevin van Geem (right hand-side) presenting at the Open Day at Dow

Prof. Tiziano Faravelli gave a presentation on oxycombustion and bio-based fuels combustion. The presentation was followed by a lecture from Dr. Ahmed Kadi, John Zink who presented combustion experiments at large-scale.

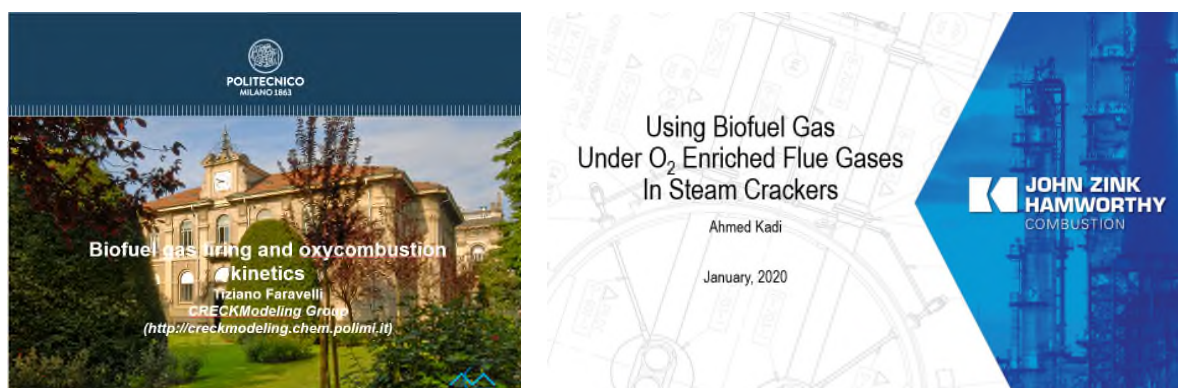


Figure 6: The front-pages from the presentations of Prof Tiziano Faravelli (Politecnico di Milano) and Dr Ahmed Kadi (John Zink).

Ir. Stijn Vangaever and Joost van Thielen presented an overview of their activities in terms of high emissivity coatings evaluation. This work is covered in work package 2.

DOW Open Day, Terneuzen, 29/01/2020



Figure 7: The front-page of the presentation by Ir. Stijn Vangaever (UGent) and Joost van Thielen (Cress)

Dr. Marko Djokic and Steffen Heyland presented their work in the matter of coils technology evaluation which includes advanced metallurgy as well as 3D shaped coils.



Figure 8: The front-page of the presentation by Dr. Marko Djokic (UGent) and Steffen Heyland (Schmidt and Clemens)

Dr. Georgios Bellos (Dow) presented together with Peter Oud (TechnipFMC) the concept of the low-emission cracking furnace design. This presentation included an aspect of Life Cycle Analysis.



Figure 9: The front-page of the presentation by Dr. G. Bellos (Dow) and Peter Oud (TechnipFMC)

4 ACHIEVEMENTS

Overall, we have received only positive feedback from the participants. During the first coffee break a picture was organized with the morning session speakers, as shown in Figure 10.



Figure 10: Picture with the speakers of the first session

The audience was very heterogeneous with participants both from academia and industry. Figure 11 shows a picture with the audience attending the event.



Figure 11: Picture showing the audience at the Open Day at Dow